Form R Calculations for Bowater-South Carolina
2002 Reporting Year

Acetaldehyde
CAS # 75-07-0

Kraft Mill

Based on NCASI Table 2, median kraft mill condensate concen. = 0.188 lb/ADTUBP
Table 1 median stripper air concentration = 0.11 lb/ADTUBP
amount remaining in condenstate to WTS = 0.078 lb/ADTUBP
kraft production = 547,109 ADTUBP/yr

lb at inlet to ASB:

547,109 ADTUBP/y	0.078 lb/ADTUBP	0.92	=	39261 lb/yr
547,109 ADTUBP/y	0.188 lb/ADTUBP	0.08	=	8229 lb/yr
			total =	47489 lb/yr

amount volatilized from NCASI Table 5 = 40.5%
47489 lb/yr x 0.405 = 19233 lb/yr

Bleach Plant

Based on NCASI Table 2, the median concentration of the waste treatment system influent for the bleach plant is 0.052 lb/ADTUBP

lb at inlet to ASB:

547,109 ADTUBP/y	0.052 lb/ADTUBP	28450 lb/yr

amount volatilized from NCASI Table 5 = 40.5%
28450 lb/yr x 0.405 = 11522 lb/yr

Fugitive Emissions for 2002: **30755** lbs acetaldehyde/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Benzene
CAS# 71-43-2

WTS emissions

Based on NCASI Table 2, average concentration is 5 ppb. (ND = 10)

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

5.00E-09 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**323** lbs/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Carbon Disulfide
CAS# 75-15-0

WTS emissions

Based on NCASI Table 2, average carbon disulfide concentration is 18.7 ppb.

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

1.87E-08 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**1207** lbs/yr

Form R Calculations for Bowater-South Carolina
2002 Reporting Year

Chlorine
CAS# 7782-50-5

WTS- assume less than **100** lbs/yr will be released from sanitary sewer (same as last year).

Form R Calculations for Bowater-South Carolina
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Chloroform
CAS # 67-66-3

Based on NOCEPM modeling from NCASI SARA Handbook, 93.8% released to atmosphere.
Total Lbs/yr (from above): 5.55E+04

5.55E+04 lbs/yr x	0.938 fugitive	=	52016.43 lbs/yr	

Total Fugitive Emissions for 2001: **52016** lbs chloroform/yr

Form R Calculations for Bowater-South Carolina
2002 Reporting Year

Cresol
CAS #1319-77-3

Based on NCASI Table 2, the WTS influent will contain 40.5 ppb cresol.
Based on NOCEPM results in NCASI SARA Handbook, 0.1% cresol will volatilize
Maximum cresols volatilized is 0.1%.
Average Daily Water to Basin, 2002 = 2.12E+07 Gals/Day x 8.34 lbs/gal = 1.77E+08 lbs/day

Lbs of Cresol at inlet:
1.77E+08 lbs/day x 365 days/yr x 4.05E-08 lb/lb = 2614 lb/yr feed

Lbs of Cresol Volatilized:
2614 lb/yr x 0.001 = 2.6 lbs/yr

Maximum Fugitive emissions: **2.6** lbs/yr

Form R Calculations for Bowater-South Carolina
2002 Reporting Year

Formaldehyde
CAS #50-00-0

Per NOCEPM resultes in NCASI SARA Handbook, 0.3% is volatilized in WTS.
Per NCASI bleached mill effluent contains 0.76 ppm

0.76ppm * 21.2 mgd * 8.34 lb/gal* 365 day = 49,046.54 lbs/yr from bleaching
49,046.54 lb/yr x 0.003 = **147.14** lb/yr fugitive

Form R Calculations for Bowater-SC
2002 Reporting Year

Methyl Ethyl Ketone (MEK)
CAS# 78-93-3

WTS

Kraft Mill

Based on NCASI Table 2, median kraft mill condensate concen. = 0.079 lb/ADTUBP
Table 1 median stripper air concentration = 0.044 lb/ADTUBP
amount remaining in condenstate to WTS = 0.035 lb/ADTUBP
kraft production = 547,109 ADTUBP/yr

lb at inlet to ASB:
547,109 ADT/yr x 0.035 lb/ADT = 19149 lb/yr

amount volatilized from NCASI Table 5 = 8.4%
19149 lb/yr x 0.084 = 1609 lb/yr

Bleach Plant

Based on NCASI Table 2, the median concentration of the waste treatment system influent for the bleach plant is 0.052 lb/ADTUBP

lb at inlet to ASB:
547,109 ADT/yr x 0.019 lb/ADT = 10395 lb/yr

amount volatilized from NCASI Table 5 = 8.4%
10395 lb/yr x 0.084 = 873 lb/yr

Total Fugitive emissions **2482** lbs/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Methyl Isobutyl Ketone (MIBK)
CAS# 108-10-1

WTS emissions

Based on NCASI Table 2, average concentration is 6.8 ug/L

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

6.80E-09 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**439** lbs/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Dichloromethane (Methylene Chloride)
CAS# 75-09-2

WTS emissions

Based on NCASI Table 2, average concentration is 0.1 ppb.

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

1.00E-10 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**6** lbs/yr

Form R Calculations for Bowater-South Carolina
2002 Reporting Year

Phenol
CAS #108-95-2

Per NOCEPM model results, <0.1% phenol will escape to atmosphere.
Based on NCASI Table 2 for phenol, WTS influent phenol conc. = 45.8 ppb
Average Daily Water to Basin, 2002 = 2.12E+07 Gals/Day x 8.34 lbs/gal = 1.77E+08 lbs/day
Fugitive Emissions =
1.77E+08 lbs/day x 365 days/yr x 4.58E-08 lb/lb x 0.001 =
Total Fugitive emissions = **2.96** lbs/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Tetrachloroethylene
CAS# 127-18-4

WTS emissions

Based on NCASI Table 2, average concentration is 5 ppb. (ND = 10)

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

5.00E-09 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**323** lbs/yr

Form R Calculations for Bowater-SC
2002 Reporting Year

Toluene
CAS# 108-88-3

WTS emissions

Based on NCASI Table 2, average concentration is 5 ppb. (ND = 10)

Daily Flow = 2.12E+07 gals/day

Annual Flow will be: 7.74E+09 gals/yr

5.00E-09 lb/lb x	7.74E+09 gals/yr x	8.34 lbs/gal =	**323** lbs/yr